CONFERENCE ON DISARMAMENT

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Verification of the chemical industry within the general pattern of verification of a Chemical Weapons Convention

1. Introduction

The efforts of the Ad Hoc Committee on Chemical Weapons to define the general pattern of verification for a Chemical Weapons Convention have so far been inconclusive. In particular, major differences of view persist as to the scope and the objectives of verification measures in the chemical industry under Article VI of the draft Convention. This paper attempts to address this issue comprehensively, by suggesting a modified and simplified approach to verification in the chemical industry.

As no part of the verification system can be taken separately, one must, however, have a comprehensive view of the general pattern of verification. The suggestions of this paper are therefore made on the basis of the assumption that there exists agreement on:

- the need for systematic, routine on-site verification, on the basis of facility agreements, regarding chemical weapons and their destruction, chemical weapons production facilities and their destruction, and production of schedule 1 chemicals, in accordance with Articles IV and V, including their Annexes, and in accordance with Annex I to Article VI;

- the need for an effective and comprehensive régime of inspections on request.

On the basis of these assumptions one can conclude that the Convention will be equipped, on the one hand with an effective system to monitor all obligations regarding declared chemical weapons and chemical weapons production facilities as well as declared production of schedule 1 chemicals, and on the other hand with a safety net, covering also all undeclared sites, which will deter against violations and enhance confidence in compliance by all States Parties.

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In addition to these two indispensable parts of the general pattern of verification a system must be established, whereby a sufficient degree of confidence is created that capabilities in the chemical industry are not used in violation of the Convention.

Such a system should, according to the suggestions developed in this paper, concentrate on production of chemicals and be based on declarations, free access and selective inspections. The inspection effort must be seen as non-discriminatory, yet relevant, without causing unmanageable administrative and financial burdens.

2. Outline and analysis of the current provisions for monitoring of the chemical industry

The current provisions establish an elaborate verification system for facilities that produce, process or consume schedule 2 chemicals above a certain threshold.

These facilities have to declare past and planned activities, they are subject to an initial inspection, leading to the elaboration of a facility agreement, on the basis of which systematic routine on-site inspections, including monitoring with instruments, will be carried out.

The verification approach taken to these facilities is similar to that established for the control of fissionable materials under IAEA safeguards, which are based on accountancy control, backed up by containment, surveillance and on-site inspections. However, due to the complex nature of the chemical industry and the limitations of existent provisions on declarations, the Convention cannot establish a verification system based on material balances. As a result, a select group of facilities are subjected to intrusive and costly verification measures, at the same time as large lacunaes are left in the coverage of the system.

Thus, national transfers are not declared, leaving chemical brokers outside. Furthermore, production of schedule 3 chemicals is only subject to monitoring by data reporting, and production capability in facilities not producing schedule 2 chemicals, or producing under a threshold, is left undeclared and unmonitored.

Finally, due to a restrictive interpretation of the term "facility", a declared and inspected schedule 2 facility may consist of one single production unit in a vast plant-site where a number of other production units could very well produce the same chemical. It may therefore be argued that the scope of verification in the chemical industry is very limited.

In spite of these limitations one can, however, assume that in the order of magnitude of 1,000 facilities world-wide would be declared under Annex 2 to Article VI. In accordance with paragraphs 9 and 11 of that Annex all of these facilities shall "promptly" after the entry into force of the Convention receive an initial inspection and have facility agreements agreed upon within six months.

Facility agreements elaborated for the purpose of national trial inspections give little guidance as to realistic time requirements for the elaboration of real facility agreements under the Convention. It could be estimated that the Technical Secretariat would need, on an average, 50-100 man-days for the conclusion of a facility agreement. Thus, in order to comply with the current provisions of the draft Convention, the Technical Secretariat might have to spend 50,000-100,000 man-days only to conclude facility agreements pursuant to Annex 2 to Article VI. This burden comes on top of activities under Articles IV and V as well as under Annex 1 to Article VI.

Furthermore, due to the flexibility of chemical industry, especially in multi-purpose-plants, facilities might want to modify their production processes. In many cases facility agreements would have to be renegotiated. There is a risk that such time-consuming renegotiations will be frequent.

It may be concluded, that the present text of the draft Convention puts an administratively and financially unmanageable burden on the Technical Secretariat, in order to establish a system of verification, which anyway is deemed insufficient by a large number of countries.

Proposals that have been made so far in order to cover the identified verification gaps, in particular various proposals for ad hoc verification measures, have thus been made as additions to a system that already seems to entail serious risks of overburdening the Technical Secretariat and the National Authorities.

3. Suggested outline of declarations and inspections to replace the provisions of Annexes 2 and 3 of Article VI

Summary

The following outline builds on a verification concept which emphasizes increased transparency as an important confidence-building measure and which is aimed at directing verification efforts to plant-sites that are perceived as relevant, while at the same time being distinctly different from inspections on request based on an urgent need for reassurance regarding the activities at the inspected site.

This paper proposes to establish one unified system of verification in the chemical industry based on a qualitative approach, that takes into account the actual production of schedule 2 and schedule 3 chemicals as well as the capability of producing listed chemicals. Such a system could merge elements of the current provisions in Annex 2 to Article VI with elements of proposals regarding ad hoc verification measures. As a result, actual inspection efforts could be reduced, at the same time as the scope of possible inspection efforts would be enlarged in terms of facilities and concentrated in terms of activities.

The basis for this proposal is one single system for declaration of facilities producing any chemical listed on Schedules 2 or 3 and for facilities capable of producing listed chemicals.

The criteria for a facility to supply annual declarations on planned activities are:

- production of any chemical listed on Schedules 2 or 3 above a threshold; or

- production of other discrete chemicals by identified chemical conversion processes above a threshold.

All declared facilities are liable to receive on-site inspection on short notice.

The aim of the inspection will be to verify that ongoing activities are in accordance with the information provided in the declarations on planned activities, including by verification of the absence of non-declared activities subject to declaration.

A facility declaring the production of chemicals listed in Schedules 2 or 3 shall receive an inspection within a specified time-period.

In addition, facilities shall be selected for inspection by the participation of States Parties in the selection process.

An annual declaration on past activities shall also be submitted by the National Authority stating aggregate quantities produced, imported and exported for each chemical listed on Schedules 2 and 3 over the past year. In this declaration, significant deviations from the declarations on planned activities shall also be declared.

4. Detailed outline of the proposed system

4.1. Definition

The term "facility" is taken to mean an entire plant-site, even if only part of this plant-site is used for the production of a chemical listed on Schedules 2 or 3, or uses an identified chemical conversion process. It is suggested that the definition of a plant-site contained in CD/984 be taken as a basis.

4.2. Declarations on planned activities

4.2.1. Declarations on planned activities shall be submitted by the National Authority to the Technical Secretariat for each facility which:

- produces any chemical listed on Schedule 2 or 3 in a quantity above given thresholds; or

- produces any other discrete chemical by use of at least one of a number of specially identified chemical conversion processes with an output in excess of a given threshold. For the purpose of these declarations a Schedule of relevant chemical conversion processes must be established, Schedule 4.

Enclosed is a list of the key chemical conversion processes that are used in the production of the chemicals listed on Schedules 1, 2 A, 2 B and 3. The list should be seen as a basis for consideration of which conversion processes could be included in a Schedule 4.

4.2.2. The declarations on planned activities shall be submitted three months in advance of the next calendar year. They should contain for each facility:

- whether production of any chemical listed on Schedule 2 or 3 above a threshold is anticipated to take place at the facility during the next calendar year, including appropriate details, such as, inter alia, chemical, amount, time for production;

or, if no such production is anticipated in the facility

- whether one or more chemical conversion processes, as listed in Schedule 4, will be used for the production of other discrete chemicals above a threshold. These declarations would not require details regarding actual production nor about the relevant conversion processes. A simple affirmative could suffice.

4.2.3. If, after the submission of the annual declaration on planned activities, additional production of any chemical listed on Schedule 2 or 3, not included in the declaration will take place, it shall be notified, together with appropriate details, to the Technical Secretariat before the production starts.

4.2.4. If, after the submission of the annual declaration on planned activities, a plant-site which has not been declared starts up a production using a conversion process, listed in Schedule 4, the declaration of the plant-site to the Technical Secretariat can be deferred to the next annual declarations on planned and past activities respectively.

4.3. Declarations of past activities

Declarations of past activities shall be submitted by the National Authorities to the Technical Secretariat within three months after the end of each calendar year stating:

- aggregate quantities produced, imported and exported of each chemical listed on Schedule 2 or 3 as well as a quantitative specification of import and export for each country involved;

- quantitative data on any production of chemicals listed on Schedules 2 and 3 at any facility differing by more than [..... per cent] from the data given in the respective declarations on planned activities; and

- any modification to the list of facilities producing discrete chemicals by the chemical conversion processes listed on Schedule 4 with an output above a threshold.

4.4. Inspections

4.4.1. All declared facilities are liable to receive on-site inspections on short notice.

4.4.2. The aim of the inspections shall be:

- to verify that the ongoing activities are in accordance with the information provided in the declaration on planned activities; and

- to verify the absence of any chemicals listed on Schedule 1 at the facility and of any non-declared production of chemicals listed on Schedules 2 and 3 above a threshold.

4.4.3. The activities of the Inspectors shall be aimed at establishing that no activity is carried out that should have been declared. This negative verification objective could be attained without necessarily providing the Inspectors detailed information regarding the actual production at the facility. Legitimate confidentiality requirements of the facility could thereby be safeguarded.

4.4.4. In the course of an inspection the Inspection team shall have the right to select any production plant within the declared facility for inspection. In order to establish the relevant facts they shall proceed from less to more intrusive methods, such as sampling of a production plant, when this is required for removing any uncertainties.

4.4.5. In the absence of facility agreements there would be a need for the elaboration of general provisions regarding procedures for the carrying out of an inspection. Provisions of this kind could be developed in the framework of the Protocol on Inspection Procedures and of the Annex on Confidentiality.

4.5. Selection of facilities to be inspected

4.5.1. Each facility producing a chemical listed on Schedule 2 or 3 in a quantity above given thresholds shall receive one inspection [within .....] after such production at the facility was notified for the first time to the Technical Secretariat. If a new type of such production begins at the facility, an additional inspection might be required.

4.5.2. In addition, each State Party has the right to propose, at facilities declared in accordance with paragraph 4.2. above, on the territory of other States Parties, a maximum of 10 inspections annually, and is under the obligation to propose at least 1 such inspection. The proposals for inspection made by the States Parties shall be communicated to, and treated within, the Technical Secretariat in a way that does not reveal which State Party had proposed a particular facility for inspection. The Technical Secretariat shall randomly select the facilities to be inspected during a certain time-period from the facilities thus suggested. The identity of a facility proposed for inspection but not selected shall not be revealed.

The number of facilities to be inspected annually by this selection principle will, as a maximum, equal the number of proposals for inspection made by the States Parties. No facility shall, however, by this selection receive more than 2 inspections per 12 months' period.

Consequently, the actual maximum number of inspections performed annually by this selection principle may be lower than the number of proposals made by the States Parties if any particular facility is proposed for inspection by States Parties more than twice during a 12 months' period.

4.5.3. A random selection of facilities to be inspected may also be made by the Technical Secretariat among all facilities declared as producing chemicals listed on Schedule 2 or 3 above a threshold to maintain an agreed number of inspections annually if the number of inspections proposed by the States Parties according to paragraph 3.5.2. falls short of that level.

4.6. National implementation

It will be the responsibility of each National Authority to assemble the required information for declarations, according to its national procedures, in order to communicate it to the Technical Secretariat. There will thus be no need for an agreed format of National Registers under the Convention.

4.7. Confidentiality

In the absence of facility agreements there will be no need to store detailed information regarding the facilities at the Technical Secretariat. Such information that the Inspectors obtain during the inspection can be handled and kept inside the plant-site.

5. Differences to the present provisions under Article VI

- processing and consumption of chemicals listed on Schedules 2 and 3 are not subjected to verification measures;
- no facility agreements will be required;
- a Schedule 4 for chemical conversion processes is established;
- selective on-site inspections on short notice will replace systematic routine on-site inspections;
- on-site inspections can take place at facilities producing Schedule 3 chemicals;
- on-site inspections can take place at facilities capable of producing listed chemicals, the capability being indicated by the use of certain chemical conversion processes;
- by using declarations on planned activities as a basis for the verification the inspections can be focused on ongoing activities instead of on past activities;
- the total verification effort in terms of on-site inspection can readily be adjusted to be commensurate with the resources available at the Technical Secretariat;
- objects for inspections may be proposed by States Parties in a non-confrontational way, thus maximizing the cost-effectiveness of the inspection effort without introducing accusations.

Enclosure

1. A basis for the elaboration of Schedule 4 - chemical conversion processes

1. Alkylation
2. Condensation
3. Dehydrogenation
4. Esterification
5. Halogenation
6. Hydrogenation
7. Isomerization
8. Oxidation
9. Substitution

Chemical industrial processes by which reactants are transformed into products can be classified in terms of "chemical conversion processes". Each such process embraces a number of individual reactions or chemical conversions, utilizing the same main types of process equipment under similar reaction conditions.

The above list of chemical conversion processes, which could indicate a capability of producing one or more listed chemicals, was compiled on the basis of the present Schedules 1, 2 A, 2 B and 3. For each listed chemical or family of chemicals, a list of production routes of importance for large-scale production was compiled. Then, for each production route the chemical conversion processes involved were identified. Thus, it was possible to classify each listed chemical or family of chemicals in terms of chemical conversion processes used for its production. This classification is annexed.

It should be noted that less than one third of the generally accepted standard types of chemical conversion processes were used in the classification of the listed chemicals. This suggests that it should be possible to exclude a significant number of chemical industrial facilities from the declarations of facilities capable of producing listed chemicals.

2. Classification of listed chemicals according to chemical conversion processes

A. Schedule 1 chemicals/families of chemicals

No.	Chemical conversion process
1.	Alkylation (other) Substitution (esterification) Halogenation Oxidation (controlled)
2.	Substitution (esterification and other)
3.	Alkylation (other) Substitution (esterification) Oxidation (controlled)
4.	Alkylation (addition to ethylene or vinyl chloride) Halogenation
5.	Alkylation (addition to acetylene)
6.	Halogenation
7.	Esterification
8.	Not applicable - extraction from natural sources
9.	Not applicable - extraction from natural sources
10.	Alkylation (other) Halogenation Oxidation (controlled)
11.	Alkylation (other) Substitution (esterification)
12.	Alkylation (other) Oxidation (controlled) Substitution (esterification)
13.	Identical to Schedule 2, item 11

B. Schedule 2 part A chemicals/families of chemicals

No.	Chemical conversion process
1.	Alkylation (other)
2.	Substitution (other)
3.	Substitution (esterification and other)
4.	Halogenation

5. Condensation
   Isomerization
   Oxidation (controlled)

6. Alkylation (other)
   Condensation
   Esterification
   Hydrogenation

7. Halogenation

8. Alkylation (addition to ethylene oxide)

9. Substitution (other)

10. Alkylation (addition to ethylene oxide or other alkylation)

11. Condensation
    Hydrogenation
    Isomerization

C. Schedule 2 part B chemicals

Amiton	Substitution (esterification)
PFIB	Isomerization

D. Schedule 3 chemicals

1. Halogenation

2. Halogenation

3. Dehydrogenation

4. Halogenation

5. Oxidation (controlled)

6. Halogenation

7. Halogenation

8. Substitution (esterification)

9. Substitution (esterification)

10. Substitution (esterification)

11. Substitution (esterification)

12. Halogenation

13. Halogenation

14. Halogenation

CONFERENCE ON DISARMAMENT

CD/1054
4 February 1991

Original: ENGLISH

LETTER DATED 4 FEBRUARY 1991 FROM THE REPRESENTATIVES OF INDONESIA, MEXICO, PERU, VENEZUELA, YUGOSLAVIA AND SRI LANKA ADDRESSED TO THE PRESIDENT OF THE CONFERENCE ON DISARMAMENT TRANSMITTING DRAFT PROTOCOL II OF AMENDMENT TO THE TREATY BANNING NUCLEAR WEAPON TESTS IN THE ATMOSPHERE, IN OUTER SPACE AND UNDER WATER

We have the honour to refer to our letter of 5 August 1988 containing our proposal (document CD/852) to amend the Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and under Water. During the first phase of the Amendment Conference, held in New York from 7 to 18 January of this year, our six countries, co-authors of the initiative to amend the Treaty, submitted for consideration of the Parties a draft Protocol II on verification of our proposed amendment.

During the discussion, it was suggested that, without prejudice to the decision taken by the Amendment Conference, the draft Protocol II be considered also by the Conference on Disarmament. We therefore request you that it be distributed as an official document of the Conference on Disarmament and made available to the Ad Hoc Committee on a Nuclear Test Ban for further consideration.

Finally, in view of the important contribution made in this regard by the Ad Hoc Group of Scientific Experts to Consider International Co-operative Measures to Detect and Identify Seismic Events, we request you that this document be made available to that Group so as to enable it to examine the relevant aspects of draft Protocol II.

(Signed) Wisber Loeis
Ambassador
Delegation of Indonesia to
the Conference on Disarmament

(Signed) Miguel Marin
Ambassador
Delegation of Mexico to
the Conference on Disarmament

(Signed) Oswaldo de Rivero
Ambassador
Delegation of Peru to
the Conference on Disarmament

(Signed) Horacio Arteaga
Ambassador
Delegation of Venezuela to
the Conference on Disarmament

(Signed) Naste Calovski
Ambassador
Delegation of Yugoslavia to
the Conference on Disarmament

(Signed) Siripala Palihakkara
First Secretary
Delegation of Sri Lanka to
the Conference on Disarmament

DRAFT PROTOCOL II OF AMENDMENT TO THE TREATY BANNING NUCLEAR WEAPON TESTS IN THE ATMOSPHERE, IN OUTER SPACE AND UNDER WATER

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PROTOCOL II

PREAMBLE

Pursuant to and in implementation of the Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and under Water, as amended, hereinafter referred to as the Treaty, the Parties hereby agree upon the following measures to assist in the verification of compliance with the obligations assumed.

Part I: Treaty institutions

Article I. The Organization

1. The Parties hereby establish an Organization for the purpose of assisting in the verification of compliance with the Treaty.

2. The Organization shall compile information and make observations pertinent to the Treaty, and shall report the information and observations to each Party to the Treaty.

3. Each Party shall co-operate fully with the Organization.

4. The principal organs of the Organization shall be the Assembly and the Secretariat.

5. Costs of the Organization shall be borne by the Parties in the same ratio as established by the annual assessment of United Nations dues, unless the Assembly, by a majority of two thirds, establishes a different schedule of charges.

6. The Organization shall enjoy in the territory of each Party the legal capacity and the privileges and immunities appropriate for the exercise of its functions. Representatives of the Organization and Parties' representatives to the Organization shall enjoy the privileges and immunities appropriate for the exercise of their functions.

Article II. The Assembly

1. Each Party shall be a member of the Assembly.

2. The Assembly shall meet at least once annually, and shall also meet whenever requested by the Secretary-General or by at least one tenth of the Parties.

3. The Assembly shall approve or modify the budget of the Organization.

4. The Assembly shall establish the policies and practices of the Organization.

5. The Assembly shall elect the Secretary-General for a five-year term.

6. The Assembly shall create a Technical Committee to assist in its work.

(a) Each member of the Assembly shall have the right to designate a representative to the Technical Committee.

(b) The Technical Committee shall review the technical operations of the Secretariat, assess the Secretariat's reports and recommendations, evaluate the performance of the Secretariat, and make recommendations to the Assembly regarding possible revision of the verification measures with a view to enhancing their effectiveness or reducing their cost.

(c) The Technical Committee shall meet at least four times per year.

(d) The Technical Committee shall be organized into Sub-Committees, with each Sub-Committee having principal responsibility for one branch or verification technology or means of Treaty verification.

7. The Assembly shall approve, modify or reject the recommendations of the Technical Committee and shall determine whether to alter the Organization's procedures.

8. Each Party shall have one vote in the Assembly. All decisions shall be taken by a majority of those voting, unless the Assembly, by a majority of two thirds, approves a different standard. The Assembly shall adopt its own rules of procedure.

Article III. The Secretariat

1. The Secretariat shall implement the verification measures contained in this Protocol and the additional measures that may be approved by the Assembly.

2. The Secretariat shall be headed by a Secretary-General.

3. The Secretariat shall have appropriate staff and resources to carry out the daily functions of the Organization, to compile and maintain the data gathered and received by the Organization, and to make observations pertinent to the Treaty.

4. The paramount consideration in the employment of the staff and in the determination of the conditions of service shall be the necessity of securing the highest standards of efficiency, competence, and integrity. Due regard shall be paid to the importance of recruiting the staff on as wide a geographical basis as possible.

5. In the performance of their duties, the Secretariat and the staff shall not seek or receive instructions from any Government or from any other authority external to the Organization. They shall refrain from any action which might reflect upon their position as international officials responsible only to the Organization. Each Party undertakes to respect the exclusively international character of the responsibilities of the Secretariat and staff and not to seek to influence them in the discharge of their responsibilities.

6. The Secretariat shall present an annual report to the Assembly and periodic reports to the Technical Committee.

7. The Secretariat shall prepare a proposed budget for approval by the Assembly.

8. The Secretariat shall designate appropriate senior staff officials to provide expert assistance to the Technical Committee.

9. The Secretariat shall establish the following Sections responsible for implementing verification measures pertinent to the prohibition of nuclear explosions in various environments:

(a) Section A, in the atmosphere;

(b) Section B, in outer space;

(c) Section C, under water; and

(d) Section D, under ground.

The Secretariat may establish other Sections and offices, as appropriate.

10. Each Section of the Secretariat shall develop a working description of the phenomena associated with nuclear explosions in each environment, which are observable by global monitoring networks, by localized monitoring, by on-site inspections or by other means. Each Section shall compile a data set recording every actual observation of such phenomena, together with a summary of available technical and other data regarding them.

11. Each Section of the Secretariat shall compile similar working descriptions of other phenomena associated with natural and legitimate events, activities and conditions that might create ambiguity or uncertainty regarding Treaty compliance, which are observable by global monitoring networks, by localized monitoring, by on-site inspections or by other means. Each section shall compile a data set recording every actual observation of such phenomena, together with a summary of available technical and other data regarding them.

12. The Secretariat shall compile a registry of reports submitted by the Parties regarding their planned or completed activities that might generate the phenomena described in paragraphs 10 and 11.

Part II: Operating procedures

Article IV. Monitoring techniques

1. The Secretariat shall establish permanent global monitoring networks, as specified in annex 1.

2. The Secretariat shall consider and, as appropriate, shall implement temporary, localized monitoring, as specified in annex 2.

3. The Secretariat shall consider and, as appropriate, shall implement on-site inspections, as specified in annex 3.

4. The Secretariat shall consider and, as appropriate, shall implement inspections to corroborate the information reported to it by the Parties, as specified in annex 4.

5. The Secretariat shall undertake research related to the Treaty. Parties shall co-operate with the Secretariat in the design, conduct and analysis of research projects that could contribute to the improvement of the technology of verification.

6. The Secretariat shall investigate the feasibility of establishing additional monitoring stations or equipment, including satellite-based or aircraft-based systems, and of obtaining prompt access to relevant data collected by individual States. States shall co-operate to the maximum extent possible in providing relevant data.

Article V. Reports

1. Each section of the Secretariat shall report monthly regarding:

(a) Additions and changes to the working descriptions, data sets, and registries it compiles;

(b) Observations it makes through permanent global monitoring networks, temporary localized monitoring, on-site inspections, and other means; and

(c) Decisions it makes regarding the application of various monitoring mechanisms and the corroboration of information supplied to it by Parties.

2. Each section of the Secretariat shall report immediately whenever, in the exercise of its functions, it detects evidence related to a possible violation of the Treaty.

3. Each Section report shall be provided to each Party and to each representative on the Technical Committee.

4. The Technical Committee shall review the reports and make recommendations to the Assembly.

Part III: Obligations of the Parties

Article VI. Co-operative measures

1. Each Party shall permit the establishment and operation on its territory of permanent global monitoring networks as specified in annex 1.

2. Each Party shall permit the establishment and operation on its territory of temporary localized monitoring as specified in annex 2.

3. Each Party shall permit on-site inspection of its territory and activities, as specified in annex 3.

4. Each Party shall provide information to the Secretariat, and shall permit the Secretariat to corroborate such information, as specified in annex 4.

5. Each Party shall assist the Secretariat in conducting monitoring activities in areas outside the jurisdiction of any Party. Each Party shall promptly provide equipment, personnel and other support requested by the Secretariat for the conduct of such operations.

6. Each Party shall co-operate fully and in a timely fashion with the Secretariat's requests for information, support or other assistance in conducting the verification procedures of this Protocol.

7. Each Party shall designate a competent national organization for the purpose of serving as liaison with the Secretariat, providing the required information, and responding to requests for assistance.

Article VII. Additional monitoring procedures

1. For the purpose of providing assurance of compliance with the provisions of the Treaty, each Party shall use national technical means of verification at its disposal in a manner consistent with generally recognized principles of international law.

2. Each Party undertakes not to inferfere with the national technical means of verification of the other Parties operating in accordance with paragraph 1 of this article.

3. Each Party undertakes not to use deliberate concealment measures which impede verification by national technical means of compliance with the provisions of the Treaty.

4. Two or more Parties may agree upon additional arrangements for the purpose of enhancing confidence in compliance with the Treaty, to be effective only among themselves, provided that those arrangements do not in any way interfere with the operations of the Organization.

5. If a multilateral verification system is established within the framework of the United Nations, the Organization shall determine the appropriate relationship between the current Treaty structures and the new agency or institutions thereby created.

Part IV: Final provisions

Article VIII. Annexes

The Annexes and Appendices shall be integral parts of this Protocol.

Annex 1: Permanent global monitoring network

Article I. Monitoring stations

1. The permanent global monitoring network shall initially include stations as indicated in appendix 1. Thereafter, additional stations may be added, as the Assembly or Secretariat determines to be necessary.

2. The Secretariat shall determine what types of monitoring equipment shall be emplaced at each station. As appropriate, the Secretariat may designate sensors capable of performing seismic monitoring, radioisotope air and precipitation sampling, ionospheric disturbance active sensing, outer space monitoring, and other monitoring functions approved by the Assembly.

3. The equipment included in the stations shall be of the best available quality and reliability, as determined by the Secretariat. The Secretariat may upgrade the equipment at the stations as improved equipment becomes available and financially feasible.

4. The network shall have at least the reliable capability to detect, locate and identify a tamped explosion of 500 tons or more of TNT equivalent anywhere in the world and of 5 tons or more of TNT equivalent within the limits of national jurisdiction of any State which has conducted more than one nuclear explosion.

5. The network shall have the capability to detect the release of significant quantities of relevant radioisotopes anywhere in the world.

6. The Secretariat shall procure the equipment for the stations. Any Party may donate stations or equipment to the global network.

7. The Secretariat shall field test the operation of the global monitoring network, assessing the accuracy and sensitivity of the equipment. Each Party shall co-operate in the conduct and evaluation of these tests.

Article II. Station operations

1. Each Party shall operate and maintain all stations on its territory. The Secretariat shall operate and maintain all stations not based on the territory of a Party.

2. The Secretariat shall train the personnel who operate and maintain the stations.

3. The Secretariat shall have immediate access to the stations and equipment at all times. The Secretariat shall inspect the stations and equipment to ensure appropriate operation and maintenance.

4. If the Secretariat finds that the host State is unable to operate and maintain a station appropriately, the Secretariat shall perform the operation and maintenance functions until the host State is able to do so.

5. Each station shall transmit its acquired data to the Secretariat headquarters in real time through a high-quality satellite-based data system

designated by the Secretariat. Data shall be transmitted in unencrypted form, and a secure authentication procedure shall be implemented to reveal any tampering or degradation in the quality of the data stream.

6. All data transmitted to the Secretariat shall be promptly available to all Parties.

7. Each station and its equipment shall be tamper-resistant and tamper-indicating.

8. Each station shall be equipped with back-up sensors, recording equipment, power supplies and other items as directed by the Secretariat.

Article III. Site selection

1. The Secretariat shall designate a large area (approximately 200 square kilometres) within which the permanent global monitoring station shall be located.

2. The host State shall then designate five small areas (each approximately 10 square kilometres) within the large area.

3. The Secretariat shall then designate one of the five small areas for establishment of the station. The Secretariat shall then select the specific site for the station, after consultation with the host State.

4. Areas and sites shall be selected based upon their suitability for performing the missions of the station. Sites shall be seismically quiet and shall if possible provide access to bed-rock.

5. Similar procedures shall apply to the relocation of a station that the Secretariat has found to be inadequate or inappropriate, and to the addition of supplementary stations to the global network.

6. The host State shall construct the station and install the equipment at the direction and under the supervision of the Secretariat.

Annex 2: Temporary localized monitoring

Article I. Initiation of local monitoring

1. The Secretariat may decide to undertake temporary localized monitoring whenever:

(a) There have been two or more events in an area for which the data acquired by the global monitoring network did not fit some elements of the Secretariat's working description of a natural or legitimate event, activity or condition;

(b) There have been one or more events in the area for which the data acquired by the global monitoring network did fit some elements of the Secretariat's working description of a nuclear explosion;

(c) There has been an on-site inspection in the area, and additional information-gathering would help confirm the nature of the ambiguous event or events; or

(d) The Secretariat otherwise determines that confidence in compliance with the Treaty would be enhanced by operation of additional localized monitoring.

2. The purposes of the temporary localized monitoring shall be to clarify an ambiguous situation, to supplement the data provided by the global network, and to demonstrate the good faith compliance of all Parties to the Treaty.

Article II. Station equipment and operations

1. The Secretariat shall determine what types of localized monitoring shall be undertaken, what equipment shall be utilized, where the equipment shall be emplaced, what the capabilities and sensitivities of the equipment shall be, and what local stations shall be constructed to support the operations. Equipment may be similar to that operated at the global network, and additional types of equipment may be installed and operated as appropriate.

2. The Secretariat shall procure, install, operate, and maintain the equipment and the station. If the Secretariat determines that construction or modification of local buildings is necessary, the host State shall perform those services at the direction and under the supervision of the Secretariat. If the Secretariat determines that the station should be operated for a sustained period of time, the Secretariat may delegate the operation and maintenance to the host State, under terms similar to those applicable to the operation of the permanent global monitoring network stations.

3. Data from the temporary stations shall be duplicated on the site and a copy provided to the host State. Data shall be transmitted promptly and securely to the Secretariat headquarters.

4. Procedures for ensuring that the data are authentic and secure shall be similar to those adopted for the permanent global monitoring network.

5. When the Secretariat determines that localized monitoring is no longer necessary, the station may be dismantled or the host State may elect to maintain its operations or convert it to other purposes. Any equipment supplied by the Secretariat shall be returned to it.

Article III. Site selection

1. The Secretariat shall designate a large area (approximately 20 square kilometres) within which the temporary localized monitoring station shall be located.

2. The host State shall then designate five small areas (each approximately 1 square kilometre) within that large area.

3. The Secretariat shall then designate one of the five small areas for establishment of the station. The Secretariat shall then select the specific site for the station, after consultation with the host State.

4. Areas and sites shall be selected based upon their ability to perform the missions of the station. Sites shall be seismically quiet and shall if possible provide access to bed-rock.

5. Similar procedures shall apply to the relocation of a station that the Secretariat has found to be inadequate or inappropriate.

Annex 3: On-site inspection

Article I. Initiation of on-site inspection

1. Any Party may submit to the Secretariat information that it believes may be relevant to compliance with the obligations of the Treaty and that may concern the necessity for conducting on-site inspection. Any Party may suggest that the Secretariat undertake an on-site inspection of the territory or activities of another Party.

2. The Secretariat shall consider all information submitted to it and shall promptly respond to all suggestions for on-site inspection. If the Secretariat decides not to undertake on-site inspection, it shall report its decision to the Assembly along with all other reports. If requested to do so by one fifth of the Parties to the Treaty, the Secretariat shall make a special report on the subject within 24 hours.

3. The Secretariat shall undertake on-site inspection, whether or not a Party has suggested it, whenever:

(a) Data from the global permanent monitoring network or the temporary localized monitoring indicate the occurence of an event that does not conform entirely to the Secretariat's working description of a natural or legitimate event, activity or condition and that does conform at least in part to the working description of a nuclear explosion; and

(b) The data suggest that the energy released in the event is either:

(i) Over 1,000 tons of TNT equivalent yield, or

(ii) A smaller event for which the selection algorithm indicates that on-site inspection should be conducted.

4. The selection algorithm for smaller events shall rely upon probabilistic sampling such that the likelihood of on-site inspection is higher when:

(a) The event is larger;

(b) There are important respects in which the event does not conform to the working description of a natural or legitimate event, activity or condition;

(c) There are important respects in which the event does conform to the working description of a nuclear explosion;

(d) There have been other similar events in the area that have not been the subject of on-site inspection or temporary localized monitoring; and

(e) The event occurs on the territory of a State that has conducted more than one nuclear explosion.

5. If the Secretariat determines to undertake an on-site inspection, the host State may appeal the decision to the Assembly, which shall consider the matter immediately. The inspection shall proceed while the Assembly is considering the appeal. If the Assembly concludes by a two thirds vote that the on-site inspection is not warranted, then the on-site inspection shall be abandoned promptly.

6. The Secretariat may issue an order requiring the host State:

(a) To leave all, or specified, vehicles, buildings, personnel, equipment and other items in place in the inspection area; and

(b) To refrain from undertaking any, or specified, other changes in circumstances of the inspection area, pending the arrival of the inspection personnel.

7. The Secretariat shall provide the following information to the host State 24 hours prior to the scheduled arrival of the inspectors at the host State's point of entry:

(a) The point of entry to be used;

(b) The estimated time of arrival and means of arrival at the point of entry;

(c) The full names of the inspectors and the transport crew, each person's gender, date of birth, place of birth, and passport number;

(d) The location to be inspected.

8. The host State shall transport the inspectors from the point of entry to the location of the inspection within 24 hours after the inspectors' arrival at the point of entry.

Article II. Conduct of on-site inspection

1. The Secretariat shall determine the area to be inspected, the duration and dates of the inspection, and the size and composition of the inspection team. The Secretariat shall designate the individual members of the inspection team.

2. The host State shall provide the inspectors with immediate and uninhibited access to the entirety of the inspection area, and to all vehicles, buildings, personnel, equipment and other items within it. The host shall provide the inspectors with transportation to, from, and within the inspection area; with appropriate housing and sustenance during the inspection; with the best quality maps available of the inspection region; and with additional logistical and safety support as necessary.

3. The inspectors shall supply their own tools and equipment for use in the inspection. The host State may examine the tools and equipment in the presence of the inspectors at the start of the inspection, and all tools and equipment shall be kept in secure storage facilities while not in use.

4. Inspectors shall be entitled to gather information they consider relevant, including, but not limited to:

(a) Taking photographs with ordinary visible-light cameras and other equipment (including video equipment);

(b) Collecting samples of air, soil, water, flora, and fauna;

(c) Surveying the area via helicopter, fixed-wing aircraft, and suitable terrestrial vehicles;

(d) Digging holes for the emplacement of sensing equipment. The data acquired in the inspection shall be used exclusively for purposes of Treaty inspection.

5. The inspectors shall have the diplomatic privileges and immunities customarily accorded to persons of their status performing similar functions under other international agreements.

6. The inspection team shall enjoy prompt, secure communications with the Secretariat headquarters. The inspection team may elect to bring its own communications equipments or to rely upon that provided by the host State.

7. The host State may designate personnel to accompany the inspectors during the performance of their duties, including the gathering of information under paragraph 4 of this article, and to replicate their observations and measurements, provided that these personnel do not interfere with the expeditious and effective conduct of the inspection.

8. If the host State considers that particular aspects of the inspection are inappropriately infringing upon its sovereignty or rights, it may lodge a complaint with the Assembly, which shall consider the question promptly. Unless the Assembly determines otherwise, by a two-thirds vote, the Secretariat shall be authorized to continue with the questioned inspection procedures.

9. Before leaving the inspection area, the inspection team shall complete a brief written report summarizing its activities and the data it has collected. A copy of this report shall be provided to the host State before the team's departure. The host State may append a commentary, either at that time or subsequently.

10. The Secretariat may include public or journalistic members on the inspection team. The inspections will be further open to public and journalistic observation as the host State considers appropriate, provided that the observers do not inhibit the expeditious and effective conduct of the inspection.

Annex 4: National data provided to the Secretariat

1. Within one year after the entry into force of the Protocol, each Party shall provide to the Secretariat the following information regarding every nuclear explosion undertaken by it or within its national jurisdiction:

(a) The geographic co-ordinates and height or depth of the explosion;

(b) The nature of the surrounding medium and seismic transmission materials;

(c) The type, yield, nature, and purpose of the explosion;

(d) The date and time of the explosion.

2. Within one year after the entry into force of the Protocol, and within one month after each subsequent incident, each Party shall provide to the Secretariat the following information regarding every natural and legitimate event, activity and condition undertaken by it or occurring within its territory that might create ambiguity or uncertainty regarding Treaty compliance:

(a) The date and time of the incident;

(b) The geographic co-ordinates and height or depth of the incident;

(c) The nature of the surrounding medium and seismic transmission materials;

(d) The nature and size or extent of the incident.

3. Within one year after the entry into force of the Protocol, and within one month after the discovery or creation of any subsequent items, each Party shall supply the Secretariat with the following information regarding any large underground cavities created or discovered by it or occurring within its territory:

(a) The geographic co-ordinates and depth of the cavity;

(b) The size and rough shape of the cavity;

(c) The date of creation or discovery of the cavity;

(d) The nature of the surrounding medium and seismic transmission materials;

(e) The purpose or function of the cavity;

(f) The nature of any contents of the cavity.

4. Each party that has conducted more than one nuclear explosion shall provide to the Secretariat the following information regarding all chemical explosions greater than 3 tons of TNT equivalent occurring anywhere under its jurisdiction and control; and each other Party shall provide the following information regarding all chemical explosions greater than 300 tons of TNT equivalent occurring anywhere under its jurisdiction and control:

(a) The geographic co-ordinates and depth of the explosion;

(b) The nature of the surrounding medium and seismic transmission materials;

(c) The nature and quantity of the explosive used;

(d) The purpose of the explosion;

(e) The explosive power of the event;

(f) The date and time of the explosion;

(g) The mode of explosion (ripple fire or otherwise).

5. The Party shall provide the information specified in paragraph 4 to the Secretariat one month before the scheduled explosion. If the planned parameters are altered, the Party shall notify the Secretariat one week before the event. If the planned parameters are altered again, the Party shall notify the Secretariat 24 hours before the event. If the actual event departs from the planned and reported parameters, the Party shall notify the Secretariat within 24 hours after the event. If there is an accidental, unauthorized or natural explosion of comparable force, the Party shall notify the Secretariat immediately and shall provide the same types of information as soon as possible and no later than one month after the event.

6. Within 12 hours after any Party launches a space vehicle, it shall provide to the Secretariat all the registry information specified in the 1975 Convention on Registration of Objects Launched into Outer Space.

7. Each Party shall notify the Secretariat immediately whenever a vertical shaft greater than 1 metre in diameter and greater than 200 metres in depth is drilled at any location within its jurisdiction and control.

8. Each Party shall notify the Secretariat immediately whenever a horizontal tunnel greater than 1 metre in diameter and having an overburden of greater than 200 metres is drilled at any location within its jurisdiction and control.

9. The Secretariat shall develop and promulgate standardized forms through which the Parties shall report the information required by this annex. The Secretariat shall advise Parties regarding conformity with reporting forms and procedures, provide training and assistance in completing the forms, and modify the forms as appropriate.

10. The Secretariat shall have the power to undertake corroboration visits, to confirm the accuracy of the information reported under this annex and to observe activities and circumstances reported.

Appendix 1: Stations of permanent global monitoring network

Preliminary list of seismic monitoring stations

From a seismic monitoring perspective, there are two basic types of geophysical terrain: (a) cratons and shields, stable platforms, and deep ocean islands; and (b) rift zones, orogenic belts (active mountain building areas), salt domes, and unconsolidated sedimentary deposits.

Non-nuclear-weapon States

Protocol II calls for the seismic monitoring of non-nuclear States at the level of 0.5kt tamped. A yield of 0.5kt corresponds to a seismic wave magnitude of 3.5mb, assuming the shot to be full tamped in hard rock. Thus, the network must be capable of detecting a magnitude 3.5mb event anywhere.

In the non-nuclear States "quality-2" stations would be used for monitoring. Quality-2 stations are current off-the-shelf high-technology stations. They consist of a nine element broad-band and three component low-noise seismometers. The individual elements are typical of a modern station, including feedback broad-band seismometers and direct digital recording. As part of a global network, quality-2 stations can monitor 3.20 million sq. km. of type-A terrain and 1.57 million sq. km. of type-B terrain down to the magnitude of 3.5mb.

1.1. One hundred and two of the Parties are smaller than 1.57 million sq. km and may therefore be monitored by a single seismic monitoring station. Indeed, in places where several small States border each other it may not be necessary that each State host a station. Mutually agreed regional arrangements that reduced the total number of stations without diminishing overall monitoring capability could be submitted to the Assembly for approval.

1.2. Four African States are larger than 1.57 million sq. km. but smaller than 3.2 million sq. km. (Algeria, Libyan Arab Jamahiriya, Sudan and Zaire); since they consist of primarily type-A terrain, they can each be monitored with a single quality-2 station as well.

1.3. The remaining eight non-nuclear States would require more than one station:

Argentina	2 stations
Australia	3 stations
Brazil	4 stations
Canada	4 stations
India	2 stations
Indonesia	2 stations
Iran	2 stations
Mexico	2 stations
Total	21 stations

The cost for the stations and instrumentation placed in non-nuclear States would be approximately $US 50.8 million ($US 0.4 million per quality-2 station).

Nuclear-weapon States

The Protocol calls for seismic monitoring of nuclear-weapon States at the level of 0.005kt fully tamped explosion in hard rock. This yield was selected to correspond approximately to a 0.2kt nuclear explosion in a large cavity (i.e. decoupled). A network capable of detecting down to 1.7mb is required in this case.

"Quality-1" stations would be installed in the nuclear testing States. Quality-1 stations are state-of-the-art research tools. They utilize a three component broad-band borehole seismometer supplemented by four single-element outstations and a three component surface seismometer at the top of the borehole. Quality-1 stations are capable of monitoring 0.438 million sq. km. of type-A terrain and 0.220 million sq. km. of type-B terrain down to the magnitude of 1.7mb.

2. The nuclear testing States would require:

United Kingdom	1 station */
United States	20 stations
Soviet Union	38 stations
Total	59 stations

*/ The normal requirement for a nation of the size and terrain of the United Kingdom would be one quality-1 station. It may be, however, that good, low-noise sites will be difficult to find in the United Kingdom, necessitating one or two more stations.

The cost for the stations and instrumentation placed in nuclear testing States will be approximately $US 59 million ($US 1 million per quality-1 station).

International territory

3. Thirty-three quality-1 stations would be placed in international territory, primarily to monitor ocean areas, at a cost of approximately $US 33 million.

Summary

1.	Seismic stations for non-nuclear States	127 stations
2.	Seismic stations for nuclear testing States	59 stations
3.	Seismic stations for international territory	33 stations
	Total number	219 stations

1.	Cost for stations in non-nuclear States	$US 50.8 million
2.	Cost for stations in nuclear testing States	$US 66.0 million
3.	Cost for stations in international territory	$US 33.0 million
	Total cost	$US 149.8 million

By comparison, a single nuclear-weapon-test explosions cost $US 30-100 million.

CONFERENCE ON DISARMAMENT

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AUSTRALIA

STRATEGY FOR PREPARING FOR THE IMPLEMENTATION OF THE CHEMICAL WEAPONS CONVENTION IN AUSTRALIA

Chemical Weapons Convention

The Chemical Weapons Convention is an international agreement being negotiated by the Conference on Disarmament, Geneva. The Conference is a multilateral forum comprising 40 member States as well as countries with observer status. Australia is represented on the Conference by a permanent delegation. Responsibility for negotiating the text of the Convention rests with the Ad hoc Committee on Chemical Weapons.

The draft Convention, known as the Rolling Text, is updated twice a year to take into account progress in the negotiations. The latest version is that of 10 August 1990 (CD/1033).

The Convention will ban the production and use of chemical weapons. By signing the Convention a State Party will undertake not to "develop, produce, otherwise acquire, stockpile or retain chemical weapons, or transfer, directly or indirectly, chemical weapons to anyone". As well, States Parties possessing chemical weapons and chemical weapons production facilities are required to destroy them.

The Convention includes in the definition of chemical weapons certain toxic chemicals, precursors and related delivery systems. The Convention identifies and categorises groups of chemicals according to the risk they pose to the Convention. They are listed in three schedules. Schedule 1 includes "super-toxic lethal chemicals". Schedule 2 includes chemicals which are key precursors to Schedule 1 chemicals and toxic chemicals which pose a significant risk to the Convention. Schedule 3 comprises dual (military and civil) purpose chemicals and other precursors. Some Schedule 2 chemicals have industrial applications; many Schedule 3 chemicals are used in large quantities in the chemical industry (the Schedules are set out in Appendix 1).

The Convention will not prohibit the production, use and transfer of toxic chemicals and their precursors for industrial, agricultural, research, medical or other peaceful purposes, domestic law enforcement, military purposes not connected with the use of chemical weapons and purposes directly related to protection against chemical warfare.

Production, use and transfer of Schedule 1 chemicals, up to a threshold level of 10 kg per year per facility, will be permitted at approved facilities for research, medical, pharmaceutical or protective purposes. Schedule 2 chemicals come under the purview of the Convention if produced, used or transferred above a yet to be defined threshold quantity. The threshold for Schedule 3 chemicals will be considerably higher than that for Schedule 2 chemicals.

The Convention will establish a system of verification involving:

- declarations by signatories specifying any chemical weapons and production facilities that they possess;
- declarations specifying destruction plans for both chemical weapons and facilities;
- initial declarations followed by annual declarations indicating the quantities of Schedule 1 chemicals produced, consumed and transferred in the previous year and anticipated production in the coming year;
- initial declarations followed by annual declarations specifying the quantities of Schedule 2 and 3 chemicals produced, consumed and transferred;
- on-site inspections and on-site monitoring by instruments of facilities producing, processing or consuming permitted quantities of Schedule 1 chemicals by international teams to verify that declarations are accurate. After initial familiarization visits routine inspections of Schedule 1 facilities may take place;
- on-site inspections of facilities producing, processing or consuming above a threshold quantity of Schedule 2 chemicals by international teams to verify that declarations are accurate. After initial familiarization visits routine inspections of Schedule 2 facilities may take place;
- the Convention will also contain provisions for inspections by the International Organization on the request of other Governments and inspections without notice.

The Convention will establish an international organization responsible for monitoring destruction programmes, for collecting, monitoring and analysing data on the production, consumption and transfer of chemicals relevant to the Convention, and for undertaking routine, ad hoc and on request on-site inspections of chemical production facilities.

The Convention requires the signatory to establish a parallel National Authority responsible for liaison with the International Organization, for collecting and providing specified data on chemicals, for providing assistance in the conduct of international on-site inspections, and for providing other assistance such as expertise, information and laboratory support.

The Convention in Australia

Australia does not possess any chemical weapons. But it does produce chemicals for civil purposes that could also be used in chemical weapons

manufacture. It will be required under the Convention to enact legislation and to develop administrative machinery to enable annual reporting of data on the chemicals relevant to the Convention which are produced, consumed, imported or exported and to facilitate regular access by international inspection teams to relevant Australian facilities.

It is expected that the main thrust of Australia's effort under the Convention will be reporting data on Schedule 3 chemicals, to a lesser extent reporting data on Schedule 2 chemicals, and assisting the International Organization to inspect facilities which produce Schedule 2 chemicals.

When the Convention comes into effect a number of actions will be required of the States parties within a very short space of time. In effect machinery to implement the Convention will need to be in place well before the Convention enters into force.

To date Australia has played a leading role in the chemical disarmament field. Recent examples include the Government sponsored regional initiative to familiarize countries of South-East Asia and the South Pacific with the objectives of the Convention and to engender support for it. The Government also sponsored the international Government-Industry Conference against Chemical Weapons held in Canberra in September 1989 which, for the first time, brought together the Convention's negotiators and representatives of the world's chemical industry. The Conference resulted in a statement by the international chemical industry strongly supporting the objectives of the Convention. Australia also assisted in organizing an international meeting of chemical industry representatives and a meeting of industry representatives with the negotiators from the Conference on Disarmament's Committee on Chemical Weapons in June 1990.

Conscious of the extensive preparations that are required and keen to continue to demonstrate its commitment to bringing the negotiations to a successful conclusion the Government has established a National Chemical Weapons Convention Secretariat in the Department of Foreign Affairs and Trade. The first task of the Secretariat was to develop a strategy to prepare Australia for implementation which is set out in this paper. The strategy comprises a programme of consultation and research leading to the development of a package of implementation measures to be considered by the Commonwealth Government at the appropriate time.

The Australian Government is committed to achieving a Chemical Weapons Convention. While negotiations on the details of the Convention are continuing, the broad framework of the Convention is set. Prospects for a speedy conclusion are good.

The task ahead is to develop an effective national implementation framework. This strategy sets out to do this. A draft was developed on the basis of an analysis of the Rolling Text along with discussions with some of the relevant parties. The draft was then, over a period of six months, circulated for comment to State and Territory Governments, industry, unions, and relevant Commonwealth departments and agencies. To conclude the process the draft strategy was considered and endorsed by the Commonwealth interdepartmental committee on the implementation of the Convention which met for the first time in September 1990. The strategy was finalized in October after having been revised to take into account the views expressed throughout the consultative process.

Objectives

The objectives of the strategy are:

- to develop a legislative and administrative framework to enable Australia to implement the Chemical Weapons Convention
- to prepare documentation to enable declarations under Articles III to V relating to the transfer and receipt of chemical weapons and of equipment for production, since either 1946 or 1975 (the date has yet to be agreed) to be made
- to assemble data to enable declarations to be made in relation to Article VI relating to the production, processing, consumption and transfer of chemicals listed in Schedules 1, 2 and 3 and to facilities which produce and consume these chemicals
- together with the Australian Bureau of Statistics and the Australian Customs Service initiate work to modify the Harmonized Tariff Classification to enable imports and exports of chemicals relevant to the Convention to be identified and data collected
- to reach broad agreement (between Commonwealth agencies, with State and Territory Governments, with industry and with unions) on the powers and functions of a National CWC Authority, on the associated consultative arrangements, and on the scope of enabling legislation. This would need to consider, among other matters:
  - confidentiality provisions for industry
  - the powers required for any national verification measures
- to promote harmonization and rationalization of data reporting requirements for the chemical industry across the government regulatory agencies involved
- to prepare for initial international inspections of any Australian facility producing Schedule 1 and 2 chemicals including preparing draft inspection agreements between the National Authority, the International Organization, and the management of each facility
- to explain to industry, unions and other affected institutions the requirements of international inspections
- to participate in further on-site inspections with institutions not previously covered for the purposes
  - of developing and demonstrating the workability of CWC procedures and thereby building confidence in it
  - of enhancing procedures for conducting international inspections
- to develop and communicate to industry, companies and other affected institutions likely routine data requirements

- to develop a register of Australian experts and potential international inspectors to provide such expert assistance as may be required by the International Organization

- to develop a national register of relevant production facilities to enable ad hoc verification encompassing both facilities producing CWC relevant chemicals and facilities capable of producing CWC relevant chemicals

- to address the need for national verification measures, and to develop such measures, to establish to a sufficient level the National Authority's confidence in the compliance by other Australian bodies with the Convention. This would need to address:

  - the need for data over and above CWC data reporting requirements

  - the need for a system of national ad hoc inspections with corresponding guidelines for the conduct of inspections

  - the development of a national inspectorate

  - any additional measures

In the course of working towards these objectives:

- to consult closely with industry, unions, State and Territory Governments and relevant Commonwealth agencies in developing the legislative and administrative framework for the implementation of the Convention

- to disseminate information about the Convention to key players and the public to promote understanding of the Convention and of Australia's implementation measures

- to assist the Geneva negotiation process and to stimulate similar preparatory work by other Governments through the provision of information relating to the Australian implementation experience.

Description and elaboration of objectives

(1) Declarations under Articles III to V

The declarations encompass: information about the transfer or receipt by Australia of any chemical weapons since 1946 or 1975; information about the transfer or receipt by Australia of any chemical weapons production equipment since 1946 or 1975; details of any chemical weapons production facility in Australia since 1946 or 1975; details of any chemical weapons destruction programme since 1946 or 1975.

This will require an update of Australia's previous data declaration (CD/907) as well as documentation of the measures taken by Australia to establish the record in relation to the above.

This would possibly involve:

- an archival search by the Department of Defence and the services;

. a census of Defence force sites, informed in part by the archival search;

. documentation of the process and results of these activities.

(2) Data reporting in relation to Schedules 1, 2 and 3

Under the three Schedules data is required about listed chemicals and about facilities producing, consuming, importing, exporting and possibly trading in these chemicals.

This requires:

. definition of the list of chemicals about which data is to be collected. Considerations are:

  - current schedules are not sufficiently specific (they include "families" of chemicals: individual chemicals need to be identified to enable effective monitoring)

  - the inclusion of chemical weapons precursors subject to Australian Government export controls which do not appear on the CWC schedules (these chemicals are listed in Appendix 2)

  - the inclusion of chemicals over and above those covered in the previous two points which the National Authority may wish to monitor

. once the list has been defined and the existing data sources reviewed, a survey to obtain the additional data needed for the initial declarations

  - this will require consultation with industry and companies about survey design

  - the survey will need to encompass defence laboratories, universities and other research institutions for Schedule 1 chemicals for uses not prohibited by the Convention as well as the civil industry

. prior to the design of this survey (by way of background to it, input into its design and to avoid duplication), existing data available from other sources about chemicals relevant to the Convention needs to be assembled

  - presence on the Australian Inventory of Chemical Substances; listing in the Australian Chemical Industry Council's directory and other directories; coverage under States' Dangerous Goods legislation

  - Customs import and export data for 1989 (country of origin, country of destination, quantities and value, Australian state of destination and origin)

  - ABS data on local production and chemical producing facilities

  - State Government data on chemicals and production facilities

. the Harmonized Tariff Classification used by the Australian Bureau of Statistics to process and classify Australian Customs Service data does not enable chemicals to be identified at the level required

- Australia will be required to report import and export data on CWC relevant chemicals including quantities, countries of origin and destination

- this will require modification of the Harmonized Tariff Classification to facilitate this

- discussions with ABS and ACS will need to take place to achieve such an outcome.

(3) Powers/functions of the National Authority and Scope of Legislation

The legislation will outlaw the development, production, import or export of chemical weapons, chemical weapons precursors, related munitions and devices and specifically designed equipment.

It will also establish the National Authority required by the Convention and any advisory arrangements, such as the proposed Advisory Council, deemed appropriate.

The legislation will need to cover: data reporting, access to sites for international inspections of the various kinds (routine, ad hoc, on request), assistance to the International Organization, powers in relation to national verification measures (for instance national inspections), future amendments to the list of toxic chemicals covered by the Act, sanctions for behaviour contrary to the Act, and its extra-territorial application. Depending on the final Convention, it may also need to cover powers relating to the installation of on-site monitoring instruments in facilities producing Schedule 1 and 2 chemicals.

This requires:

. review of related Commonwealth legislation covering the chemical industry

. identification of "model" legislation (on which the CWC legislation could draw)

. liaison and consultation with directly affected agencies (e.g. Customs and States)

. possibly identification and review of State legislation for background, legislative models, and examining the possibility of working through State legislation

. consultation with the Attorney-General's Department.

(4) Preparations for inspection

Facilities producing, processing and consuming Schedule 1 and 2 chemicals will be subject to routine on-site inspection, to commence when the Convention enters into force.

Preparatory work which can be done before then includes:

- identification of facilities which would be subject to routine inspection and which would need to be covered in the inspection agreements between the International Organization, the National Authority and each facility (facilities would be identified through data collection activities on the production of chemicals)

- development of draft inspection agreements between the three parties identified above and of guidelines for the conduct of inspections with appropriate consultation with industry, individual companies, unions and other affected institutions

- definition of responsibilities between parties (National Authority, international team, facilities)

- facilitating the development of practicable inspection procedures for the full range of institutions (e.g. military installations) through preliminary consultations possibly followed by additional trial inspections

- communicate likely data requirements of the international inspection team to facilities and to State and Territory Governments

- collection of background information on facilities including the presence of on-site laboratory facilities, for the National Authority

- identification of the practical requirements of the inspection team and development of guidelines and procedures to meet these

- development of arrangements for alternative, off-site laboratory analysis where this may be required

- establish the nature of the States' existing inspection régimes and practice as a possible basis for Commonwealth legislative provisions to underpin the inspection agreements between the International Organization, the National Authority, and the management of each facility.

Preparation may require a round of preliminary inspections or consultations with relevant facilities by the National Authority/Secretariat to obtain necessary data prior to the first round of inspections by the International Organization.

Government departments responsible for facilities which may be subject to inspection by the International Organization will need to consider what procedures they will need to put in place to ensure Australia's fullest possible compliance with its obligations under the Convention to accept and facilitate inspections.

(5) <u>Communicate likely routine data requirements to industry and other institutions</u>

Industry and other affected institutions need to know as quickly as possible what data will be required on an on-going basis.

The proposed survey can be a vehicle for establishing what data the implementation of the Convention will require on an on-going basis and the best form of providing this.

This assumes that alternative sources of data or alternative data collection agencies, e.g. State bodies, do not collect the necessary data.

(6) Register of Technical and Scientific Experts

This is required for two levels: international and national.

Under the Convention the National Authority may be requested to provide a range of assistance and expertise to the International Organization.

Preliminary work towards developing an Australian capacity in the relevant expertise could include:

- identifying individuals suitable for recruitment as international inspectors (for the International Organization's Technical Secretariat)
- experts for the National Authority: development of a national inspectorate capacity (if required under national verification measures)
- providing training for such personnel
- providing training for the region
- identifying individuals suitable for appointment to the International Organization's Scientific Advisory Board

(7) Register of Facilities

The data collection activities will need to identify not only facilities producing CWC relevant chemicals but also facilities capable of producing CWC relevant chemicals and thus of interest to the National Authority for future monitoring.

This register possibly could draw on or be modelled on data about facilities collected by the States for other purposes.

The register will provide the basis for, inter alia:

- contacting companies and other institutions on an annual basis for data reporting
- identification of the facilities with whom agreements would need to be negotiated for the purposes of international inspections
- international ad hoc verification and possibly inspections without notice conducted by the National Authority.

(8) Consultation and information

Regular and ongoing consultation with industry, with unions, with State and Territory government agencies and with other departments and agencies of

the Commonwealth is an underlying principle of the preparatory process. It is important that development of the implementation framework is based upon a sound understanding of what the Convention will require from Australia and upon substantial agreement between the parties about the measures the Government is proposing to put in place.

Regular consultation and exchange of information are also important to establish good communication and working relations between the Secretariat, other government agencies, companies and other affected institutions to ensure that essential information flows to the National Authority once it is established.

As well as one-to-one consultation between the Secretariat and other agencies a number of formal consultative mechanisms will be established:

- an inter-departmental committee at Commonwealth level on the implementation of the Convention

- a Consultative Group comprising representatives of industry (employers and unions), State and Territory Governments and Commonwealth departments.

(9) Assisting other Governments and the Geneva Negotiations

The Secretariat will feed its experience in preparing for implementation of the Convention into the Geneva process by contributing its perspective where appropriate and by seeking comment from Geneva as required.

Hungary has recently tabled a paper at the Conference on Disarmament providing information about Schedule 2 and 3 chemicals and facilities. Through the Secretariat's data collection activities Australia will be able to table a similar paper.

The Secretariat will prepare implementation progress reports at regular intervals.

Where appropriate Secretariat papers will be made available to other governments to stimulate preparations for implementation by other countries.

The preparation programme: priority tasks and activities

The time scale - and deadline - for the programme is dependent upon progress with the chemical weapons negotiations. The programme has been divided into a number of sequential stages, commencing in April 1990.

(1) Preliminary: Establishment period

(2) Stage 1: Strategic planning and data collection

(3) Stage 2: Preparations for inspection

(4) Stage 3: Establishment of the National Authority

Preliminary: Establishment period

This covers setting up of the National Secretariat, related information and publicity, familiarization and establishing contact with relevant agencies.

Stage 1: Strategic planning and data collection

This covers the development of this strategy, consultations to discuss and obtain responses to the strategy, specification and definition of CWC relevant chemicals, collection and review of existing data about the relevant chemicals and facilities, and the design and implementation of the survey to collect additional data from industry.

It also embraces a number of concurrent activities: for example, the proposed Defence review of Australian chemical weapons activity since 1946 or 1975; and the review of the regulatory framework.

Specification of tasks:

1. Development of a strategy on preparing for implementation of the Convention in Australia

Purpose: to provide the framework for the implementation of the Convention in Australia from the establishment of the Secretariat through to the establishment of the Authority and/or signing of the Convention.

The Strategy would be considered by the IDC, would be provided to industry and the States for comment and information and, if desired, would be tabled at Geneva as the Australian model.

2. Specification and definition of CWC-relevant chemicals

All implementation activity (data reporting, inspection) is dependent upon agreement about which chemicals to monitor. This requires:

- an elaboration or specification of the CWC schedules in terms of CAS numbers (so that they are readily identifiable)

- the identification of any other, additional chemicals which the Authority may wish to monitor.

Chemical weapons precursors subject to the Australian Government's export controls will be included in the data collection exercise.

The Commonwealth Government's main source of scientific expertise on the technical aspects of chemical disarmament, Materials Research Laboratory (MRL) will advise on these issues. It is envisaged that MRL will provide the technical advice required by the National Secretariat throughout the preparatory period.

3. Review of existing data

Purpose: to avoid collecting data which may already be available, and to provide background information on the chemical industry in Australia.

The existing data sources about chemicals produced and traded in Australia are:

. ACIC Directory, the Etonwood Directory and the Worksafe Australian Inventory of Chemical Substances

. Customs import and export data classified by the ABS in terms of the Combined Australian Customs Tariff and Statistical Nomenclature (imports) and the Australian Harmonized Export Commodity Classification (exports). To make use of this data the agreed list of CWC relevant chemicals needs to be assigned to the harmonized tariff classification.

There are two minor ABS databases which provide some limited data on production and on production facilities

. data about facilities and chemicals collected by the States especially under Dangerous Goods and Environmental Protection legislation.

While none of these data sources has been fully explored as yet it is unlikely that they will yield sufficient data to render an additional data collection exercise unnecessary. Its extent will be determined by what these other sources yield.

4. Extension of the harmonized tariff classification

Purpose: to enable Australia to make declarations about imports and exports of Schedule chemicals.

The Classification groups chemicals at a higher level of generality than that which is required by the Convention.

The Classification does however have the capacity to be modified to more specific levels.

Customs data is processed into this Classification by the Australian Bureau of Statistics.

To modify the Classification will require the co-operation and agreement of both ABS and ACS. It presupposes a well-defined and agreed list of chemicals.

5. Chemical industry survey

Purpose: to provide the additional data required to enable Australia to make initial declarations about the production, consumption, import and export of Schedule 1, 2 and 3 chemicals, about the facilities producing these chemicals and to identify the facilities which will be subject to international inspection.

This third aspect (identification of facilities) would provide the basis for the register of facilities. The survey could be designed to encompass facilities capable of producing the relevant chemicals for national monitoring and inspection purposes.

This survey, together with the review of existing data, is the crux of the preparatory exercise. It will provide the hard data for determining the scale of implementation measures required as well as the level of resources required by the Authority.

The survey would need to cover MRL and other research agencies (for Schedule 1) as well as the domestic civil industry.

It also represents the main opportunity in implementation for disseminating information to all the relevant players about the Convention.

6. Defence chemical weapons review

Purpose: to enable Australia to make declarations about the existence of any chemical weapons, transfers and receipt of weapons, production facilities, and equipment since 1946 or 1975 with the greatest degree of confidence about accuracy.

It is envisaged that this review would be undertaken by the Department of Defence.

7. Review of regulatory framework

Purpose: to enable the Secretariat to understand existing Commonwealth and State powers, legislation, regulations and administrative structures relevant to the chemical industry and to CWC implementation.

The main likely outcomes are:

- learning from other legislation for the design of the CWC legislation (consistency)

- making use of existing legislative and administrative provisions to achieve CWC objectives (avoiding duplication)

- obtaining information about data reporting and inspection régimes currently operating (the norms industry operates under already).

State Governments will be invited to provide State overviews of relevant State legislation.

This work, together with the earlier assessment of data routinely collected by State Government agencies, would provide the main empirical basis for any harmonization work.

Stage 2: Preparations for inspection

The data collection exercise will define the pool of facilities to be subject to international inspection and thus the scale of preparation required.

Activities covered in this Stage include:

- development of draft inspection agreements between the National Authority, the International Organization and the management of each facility, associated guidelines for the conduct of inspections, and consultations with industry and unions

- work on the register of facilities (possibly a second stage of the survey)
- development of the register of experts
- development of the forms and extent of assistance to be provided by the National Authority to the international inspection team
- preliminary inspections and collection of information from companies and research agencies to facilitate the work of the international inspection team may prove to be necessary
- discussion with industry and unions about the likely requirements of international inspection teams
- consultation with States about their existing inspection régimes.

As well as preparation for international inspection thinking on national verification measures would need to be developed at this point.

Stage 3: CWC legislation and National Authority

If judged appropriate at the time this would be the stage at which an implementation package would be developed for Government consideration.

This would involve development of a paper setting out the key options covering: CWC legislation; powers, functions, and resources of the Authority; the Advisory Council; and national verification measures.

This would be followed by informal consultation with other departments, States, and industry on the basis of this paper; its refinement and consideration by the IDC; further refinement; and following decisions by the Government, development of legislation.

APPENDIX 1

THE CHEMICAL WEAPONS CONVENTION'S SCHEDULES OF CHEMICALS

Schedule 1 [CAS No.]

1. O-Alkyl ($\leq C_{10}$, incl. cycloalkyl) alkyl (Me, Et, n-Pr or i-Pr)-phosphonofluoridates

   e.g. Sarin: O-isopropyl methylphosphonofluoridate [107-44-8]
   Soman: O-pinacolyl methylphosphonofluoridate [96-64-0]

2. O-Alkyl ($\leq C_{10}$, incl. cycloalkyl) N,N-dialkyl (Me, Et, n-Pr or i-Pr) phosphoramidocyanidates

   e.g. Tabun: O-ethyl N,N-dimethylphosphoramidocyanidate [77-81-6]

3. O-Alkyl (H or $\leq C_{10}$, incl. cycloalkyl) S-2-dialkyl (Me, Et, n-Pr or i-Pr)-aminoethyl alkyl (Me, Et, n-Pr or i-Pr) phosphonothiolates and corresponding quaternary ammonium compounds

   e.g. VX: O-ethyl S-2-diisopropylaminoethyl methyl phosphonothiolate [50782-69-9]

4. Sulphur Mustards:

   Mustard gas (H): bis(2-chloroethyl)sulphide [505-60-2]
   Sesquimustard (Q): 1,2-bis(2-chloroethylthio)-ethane [3563-36-8]
   O-Mustard (T): bis(2-chloroethylthioethyl)ether [63918-89-8]
   bis(2-chloroethylthio)methane [63869-13-6]
   1,3-bis(2-chloroethylthio)-n-propane [63905-10-2]
   1,4-bis(2-chloroethylthio)-n-butane [NA]
   2-Chloroethylchloromethylsulphide [2625-76-5]

5. Lewisites:

   Lewisite 1 : 2-chlorovinyldichloroarsine [541-25-3]
   Lewisite 2 : bis(2-chlorovinyl)chloroarsine [40334-69-8]
   Lewisite 3 : tris(2-chlorovinyl)arsine [40334-70-1]

6. Nitrogen Mustards:

   HN1: bis(2-chloroethyl)ethylamine [538-07-8]
   HN2: bis(2-chloroethyl)methylamine [51-75-2]
   HN3: tris(2-chloroethyl)amine [555-77-1]

7. 3-Quinuclidinyl benzilate (BZ) [6581-06-2]

8. Saxitoxin [35523-89-8]

9. Ricin

10. Alkyl (Me, Et, n-Pr or i-Pr) phosphonyldifluoride

    e.g. DF: methylphosphonyldifluoride [676-99-3]

11. O-Alkyl (H or $\leq C_{10}$, incl. cycloalkyl) O-2-dialkyl (Me, Et, n-Pr or i-Pr)-aminoethyl alkyl (Me, Et, n-Pr or i-Pr) phosphonites and corresponding quaternary ammonium compounds

    e.g. QL: O-ethyl O-2-diisopropylaminoethyl methylphophonite [57856-11-8]

12. O-Alkyl ($\leq C_{10}$, incl. cycloalkyl) alkyl (Me, Et, n-Pr or i-Pr)-phosphonochloridates

    e.g. Chloro Sarin: O-isopropyl methylphosphonochloridate [1445-76-7]

    Chloro Soman: O-pinacolyl methylphosphonochloridate [7040-57-5]

13. 3,3-Dimethylbutan-2-ol (pinacolyl alcohol) [464-07-3]

Schedule 2, Part A

1. Chemicals, containing a phosphorus atom to which is bonded one methyl, ethyl or propyl (normal or iso) group but not further carbon atoms, except for those chemicals listed under Schedule 1.

2. N,N-Dialkyl (Me, Et, n-Pr or i-Pr) phosphoramidic dihalides

3. Dialkyl (Me, Et, n-Pr or i-Pr) N,N-dialkyl (Me, Et, n-Pr or i-Pr)-phosphoramidates

4. Arsenic Trichloride [7784-34-1]

5. 2,2-Diphenyl-2-hydroxyacetic acid [76-93-7]

6. Quinuclidin-3-ol [1619-34-7]

7. N,N-Dialkyl (Me, Et, n-Pr or i-Pr) aminoethyl-2-chloride and corresponding quaternary ammonium compounds

8. N,N-Dialkyl (Me, Et, n-Pr or i-Pr) aminoethane-2-ol and corresponding quaternary ammonium compounds

9. N,N-dialkyl (Me, Et, n-Pr or i-Pr) aminoethane-2-thiol and corresponding quaternary ammonium compounds

10. Bis(2-hydroxyethyl)sulphide (thiodiglycol) [111-48-8]

11. 3,3-Dimethylbutan-2-ol (pinacolyl alcohol) [464-07-3]

Schedule 2, Part B

Amiton: O,O-Diethyl S-(2-diethylamino)ethyl) phosphorothiolate [78-53-5]

PFIB: 1,1,3,3,3 - pentafluoro -2- (trifluoromethyl) - 1 - propene [382-21-8]

Schedule 3

1. Phosgene [75-44-5]
2. Cyanogen chloride [506-77-4]
3. Hydrogen cyanide [74-90-8]
4. Trichloronitromethane (chloropicrin) [76-06-2]
5. Phosphorus Oxychloride [10025-87-3]
6. Phosphorus Trichloride [7719-09-7]
7. Phosphorous Pentachloride [10026-13-8]
8. Di- and Trimethyl/Ethyl Esters of Phosphorus (P III) Acid

   e.g.: Trimethyl Phosphite [121-45-9]
   Triethyl Phosphite [122-52-1]
   Dimethyl Phosphite [868-85-9]
   Diethyl Phosphite [762-04-9]
9. Sulphur monochloride [10025-67-9]
10. Sulphur dichloride [10545-99-0]
11. Thionyl Chloride [7719-09-7]

Possible Additions to Schedule 3

1. Phosphorous Sulfochloride [3982-91-0]
2. Triethanolamine [102-71-6]
3. Ethyldiethanolamine [139-87-7]
4. Methyldiethanolamine [105-59-9]

19 October 1990

APPENDIX 2

CHEMICAL WEAPONS PRECURSORS SUBJECT TO AUSTRALIAN EXPORT CONTROLS

Chemical Compound	[CAS No.]
1. Thiodiglycol**	[111-48-8]
2. Phosphorus Oxychloride***	[10025-87-3]
3. Dimethyl Methyl Phosphonate	[756-79-6]
4. Methyl Phosphonyl Difluoride*	[676-99-3]
5. Methyl Phosphonyl Dichloride	[676-97-1]
6. Dimethyl Phosphite***	[868-85-9]
7. Phosphorus Trichloride***	[7719-09-7]
8. Trimethyl Phosphite***	[121-45-9]
9. Thionyl Chloride	[7719-09-7]
10. 3-Hydroxy-1-Methylpiperidine	[3554-74-3]
11. n,n-Diisopropyl-2-Aminoethyl Chloride	[96-79-7]
12. n,n-Diisopropyl-2-Aminoethane Thiol	[5842-07-9]
13. 3-Quinuclidinol**	[1619-34-7]
14. Potassium Fluoride	[7789-23-3]
15. 2-Chloroethanol	[107-07-3]
16. Dimethylamine	[124-40-3]
17. Diethyl Ethylphosphonate	[78-38-6]
18. Diethyl-n, n-Dimethylphosphoramidate	[2404-03-7]
19. Diethyl Phosphite***	[762-04-9]
20. Dimethylamine Hydrochloride	[506-59-2]
21. Ethyl Phosphinyl Dichloride	[1498-40-4]
22. Ethyl Phosphonyl Dichloride	[1066-50-8]
23. Ethyl Phosphonyl Difluoride	[753-98-0]
24. Hydrogen Fluoride	[7664-39-3]
25. Methyl Benzilate	[76-89-1]
26. Methyl Phosphinyl Dichloride	[676-83-5]
27. n,n-Diisopropyl-2-Amino Ethanol	[96-80-0]
28. Pinacolyl Alcohol*,**	[464-07-3]
29. QL (O-Ethyl-2-Diisopropylamino-ethyl Methylphosphonite)*	[57856-11-8]
30. Triethyl Phosphite***	[122-52-1]
31. Arsenic Trichloride**	[7784-34-1]
32. Benzilic Acid (2,2-Diphenyl-2-Hydroxyacetic Acid) (2,2-Diphenyl-glycolic Acid)**	[76-93-7]
33. Diethyl Methylphosphonite	[15715-41-0]
34. Dimethyl Ethylphosphonate	[6163-75-3]
35. Ethyl Phosphinyl Difluoride (Ethyl Phosphonous Difluoride)	[430-78-4]
36. Methyl Phosphinyl Difluoride (Methyl Phosphonous Difluoride)	[753-59-3]
37. 3-Quinuclidone	[3731-38-2]
38. Phosphorus pentachloride	[10026-13-8]
39. Pinacolone (3,3-Dimethyl-2-Butanone)	[75-97-8]
40. Potassium Cyanide	[151-50-8]
41. Potassium Bifluoride (Potassium Hydrogen Fluoride)	[7789-29-9]
42. Ammonium Bifluoride (Ammonium Hydrogen Fluoride)	[1341-49-7]
43. Sodium Bifluoride (Sodium Hydrogen Fluoride)	[1333-83-1]
44. Sodium Fluoride	[7681-49-4]

45.	Sodium Cyanide	[143-33-9]
46.	Tri-ethanolamine ****	[102-71-6]
47.	Phosphorus pentasulphide	[1314-80-3]
48.	Di-isopropylamine	[108-18-9]
49.	2-Diethylaminoethanol	[100-37-8]
50.	Sodium Sulphide	[1313-82-2]

Notes

* Listed on Schedule 1

** Listed on Schedule 2A

*** Listed on Schedule 3

**** Possible addition to Schedule 3